UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,738	12/02/2003	Shirish Rai	004-7440	3070

51344 7590 06/19/2008
BROOKS KUSHMAN P.C. / SUN / STK
1000 TOWN CENTER, TWENTY-SECOND FLOOR
SOUTHFIELD, MI 48075-1238

EXAMINER	
GILLIS, BRIAN J	

ART UNIT	PAPER NUMBER
2141	

MAIL DATE	DELIVERY MODE
06/19/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/725,738	RAI ET AL.	
	Examiner	Art Unit	
	Brian J. Gillis	2141	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-70* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-70* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 December 2003* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *08012005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-13, 25, 36, and 47-70 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claimed load balancer of claims 1-13, the apparatus of claims 48-52, and network of claims 67-70 are software per se as described in paragraph 1023 of the specification. Please refer to MPEP 2106.

Claims 25, 36, 47, and 53-66 refer to a computer program product on machine-readable media. The specification refers to machine-readable medium as including any mechanism for transmitting information including electrical, optical, acoustical or other forms of propagated signals (e.g. carrier waves, infrared signals, digital signals, etc.) which are considered non-statutory. The machine-readable medium must be in an embodiment which are structurally and functionally interconnected with the software in such a manner to, in and of itself, enable any usefulness to be realized. Please refer to MPEP 2106.01.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 8-10, 13-21, 23, 25, 26-30, 33-45, 47-56, 58-60, 62, 63, and 65-70 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawata et al (US PGPUB US2002/0032777).

(Claim 1 discloses) a load balancer that collects server capability information for a plurality of servers, wherein the server capability information is based at least in part on processing of sample requests transmitted to the plurality of servers during intervals, and that load balances client requests in accordance with the collected server capability information (Kawata et al shows test service packets are sent to servers which are processed and returned providing information to the load balancer to load balance requests from clients which is repeated throughout (paragraphs 74-76, 82, and 83)).

(Claim 2 discloses) the load balancer of claim 1 that encodes the collected server capability information to represent the plurality of servers in accordance with proportional server capability of each of the plurality of servers (Kawata et al shows a load balancer generates capability information based on the measured load of the servers (paragraphs 75 and 76)).

(Claim 3 discloses) the load balancer of claim 2 wherein the load balancing of client requests comprises selection of entries from the proportional server capability encoding, wherein each entry indicates at least one of the plurality of servers (Kawata et al shows a server is chosen based on the load status of the servers (paragraphs 66 and 67)).

(Claim 4 discloses) the load balancer of claim 3 wherein the selection of entries is random or pseudo-random (Kawata et al shows the selection is based on a round robin or pseudo-random fashion (paragraph 67)).

(Claim 5 discloses) the load balancer of claim 3 wherein the selection of entries is predetermined (Kawata et al shows the selection is based on a round-robin fashion which selects in a sequential order (paragraph 67)).

(Claim 6 discloses) the load balancer of claim 5 wherein the selection of entries is sequential (Kawata et al shows the selection is based on a round-robin fashion which selects in a sequential order (paragraph 67)).

(Claim 8 discloses) the load balancer of claim 1 wherein the sample requests include a mixture of configurable directory requests (Kawata et al shows the service requests contain various content (paragraph 39)).

(Claim 9 discloses) the load balancer of claim 1 wherein the server capability information includes one or more of proportion of serviced sample requests, time to serve each sample request, time to serve total sample requests, proportion of sample request types serviced, and time to serve sample request types (Kawata et al shows the system measures the time to service a request (paragraph 74)).

(Claim 10 discloses) the load balancer of claim 1 that updates a proportional server capability based load balancing encoding in accordance with the collected server capability information (Kawata et al shows the load management table is updated as requests are serviced (paragraph 40)).

(Claim 13 discloses) the load balancer of claim 1 embodied in one or more of cache, registers, memory, and fast look-up tables (Kawata et al shows the load balancer is stored on computer readable storage medium (paragraph 104)).

(Claim 14 discloses) a method comprising: during intervals, collecting data that reflects capabilities of a plurality of backend servers, wherein the backend server capability data is based at least in part on servicing of sample requests by the plurality of backend servers (Kawata et al shows test service packets are sent to servers which are processed and returned providing information to the load balancer to load balance requests from clients which is repeated throughout (paragraphs 74-76, 82, and 83).); and encoding the collected backend server capability data to reflect proportional backend server capability of each of the plurality of backend servers (Kawata et al shows a load balancer generates capability information based on the measured load of the servers (paragraphs 75 and 76)).

(Claim 15 discloses) the method of claim 14 wherein the collected backend server capability data is encoded to indicate each of the plurality of backend servers in accordance with their proportional capability based at least in part on the collected backend server capability data (Kawata et al shows a load balancer generates capability information based on the measured load of the servers (paragraphs 75 and 76)).

(Claim 16 discloses) the method of claim 14 further comprising updating the encoding in accordance with the collected data (Kawata et al shows the load management table is updated as requests are serviced (paragraph 40)).

(Claim 17 discloses) the method of claim 14 further comprising load balancing client requests in accordance with the encoding. (Kawata et al shows requests are distributed to the servers accordingly (paragraphs 66 and 67)).

(Claim 18 discloses) the method of claim 17 wherein the load balancing comprises randomly selecting entries from the encoding, wherein the encoding includes entries that indicate the plurality of backend servers (Kawata et al shows the selection is based on a round robin or pseudo-random fashion (paragraph 67)).

(Claim 19 discloses) the method of claim 17 wherein load balancing comprises selecting predetermined entries from the encoding, wherein the encoding includes entries that indicate the plurality of backend servers (Kawata et al shows the selection is based on a round-robin fashion which selects in a sequential order (paragraph 67)).

(Claim 20 discloses) the method of claim 19 wherein the predetermined selection of entries is sequential (Kawata et al shows the selection is based on a round-robin fashion which selects in a sequential order (paragraph 67)).

(Claim 21 discloses) the method of claim 14 wherein the collected backend server capability data includes one or more of proportion of sample requests serviced by each of the backend servers, time for each of the backend servers to serve each sample request, time for each of the backend servers to serve total sample requests, proportion of sample request types serviced by each of the backend servers, and time for each of the backend servers to serve sample request types (Kawata et al shows the system measures the time to service a request (paragraph 74)).

(Claim 23 discloses) the method of claim 14 wherein the sample requests include sample directory requests (Kawata et al shows the service requests contain various content (paragraph 39)).

(Claim 25 discloses) the method of claim 14 embodied as a computer program product encoded on one or more machine-readable media (Kawata et al shows the method is stored on computer readable medium (paragraph 104)).

(Claim 26 discloses) a method comprising: load balancing client requests across a plurality of servers in accordance with a proportional server capability information encoding that reflects proportional capabilities of the plurality of servers , wherein the reflected proportional server capability information is based at least in part on servicing of sample requests by the plurality of servers (Kawata et al shows test service packets are sent to servers which are processed and returned providing information to the load balancer to load balance requests from clients which is repeated throughout (paragraphs 74-76, 82, and 83), and a server is chosen based on the load status of the servers (paragraphs 66 and 67)).

(Claim 27 discloses) the method of claim 26 wherein encoding reflects frequency of sample requests serviced by the servers (Kawata et al shows a load balancer generates capability information based on the measured load of the servers (paragraphs 75 and 76)).

(Claim 28 discloses) the method of claim 27 wherein the frequency of sample requests serviced includes one or more of number of sample requests serviced during a time interval, number of sample requests serviced during a time interval based on type

of sample requests, time to service a number of sample requests, and time to service a number of sample requests based on type of sample requests (Kawata et al shows the system measures the time to service a request (paragraph 74)).

(Claim 29 discloses) the method of claim 26 further comprising maintaining the proportional server capability information encoding (Kawata et al shows the server information is updated as conditions change (paragraph 56)).

(Claim 30 discloses) the method of claim 26 further comprising the proportional server capability information at intervals between servicing of client requests (Kawata et al shows the server information is updated between servicing requests (paragraph 56)).

(Claim 33 discloses) the method of claim 26 wherein the encoding includes a data structure that indicates the plurality of servers in accordance with the proportional server capability information (Kawata et al shows a server is chosen based on the load status of the servers (paragraphs 66 and 67)).

(Claim 34 discloses) the method of claim 33 wherein the load balancing comprises selecting entries from the data structure at random (Kawata et al shows the selection is based on a round robin or pseudo-random fashion (paragraph 67)).

(Claim 35 discloses) the method of claim 34 wherein the load balancing comprises predetermined selection of entries from the data structure (Kawata et al shows the selection is based on a round-robin fashion which selects in a sequential order (paragraph 67)).

(Claim 36 discloses) the method of claim 26 embodied as a computer program product encoded in one or more machine-readable medium (Kawata et al shows the method is stored on computer readable medium (paragraph 104)).

(Claim 37 discloses) a method comprising: during a data collection interval, transmitting sample requests to servers, recording data that corresponds to servicing of the transmitted sample requests by each of the servers (Kawata et al shows test service packets are sent to servers which are processed and returned providing information to the load balancer to load balance requests from clients which is repeated throughout (paragraphs 74-76, 82, and 83).); and encoding the recorded data, wherein the encoding of the data indicates each of the servers in accordance with their proportional server capability based at least in part on the recorded data (Kawata et al shows a load balancer generates capability information based on the measured load of the servers (paragraphs 75 and 76)).

(Claim 38 discloses) the method of claim 37 wherein the encoding includes a load balancing table (Kawata et al shows a load management table (figure 1, #104)).

(Claim 39 discloses) the method of claim 38 further comprising randomly selecting entries from the load balancing table to load balance client requests across the servers (Kawata et al shows the selection is based on a round robin or pseudo-random fashion (paragraph 67)).

(Claim 40 discloses) the method of claim 38 further comprising predetermined selection of entries from the load balancing table to load balance client requests across

the servers (Kawata et al shows the selection is based on a round-robin fashion which selects in a sequential order (paragraph 67)).

(Claim 41 discloses) the method of claim 37 further comprising load balancing client requests in accordance with the encoding (Kawata et al shows requests are distributed to the servers accordingly (paragraphs 66 and 67)).

(Claim 42 discloses) the method of claim 37 further comprising randomly selecting entries from the load balancing structure to load balance client requests (Kawata et al shows the selection is based on a round robin or pseudo-random fashion (paragraph 67)).

(Claim 43 discloses) the method of claim 37 wherein the sample requests include search requests, compare requests, and update requests (Kawata et al shows the service requests contain various content (paragraph 39)).

(Claim 44 discloses) the method of claim 37 wherein the recorded data indicates one or more of number of sample requests serviced during the data collection interval by each of the directory servers, number of sample requests serviced during the data collection interval by each of the directory servers based on sample request type, time for each directory server to service a number of sample requests during the data collection interval, and time for each of the directory servers to service a number of sample requests based on type of sample requests during the data collection interval (Kawata et al shows the system measures the time to service a request (paragraph 74)).

(Claim 45 discloses) the method of claim 37 further comprising servicing client requests with a second plurality of servers during the data collection interval (Kawata et al shows another server processes requests while samples are processed (paragraph 72)).

(Claim 47 discloses) the method of claim 37 embodied as a computer program product encoded in one or more machine-readable medium (Kawata et al shows the method is stored on computer readable medium (paragraph 104)).

(Claim 48 discloses) an apparatus comprising: a network interface (Kawata et al shows a network interface (figure 1).); and means for load balancing client requests in accordance with a proportional server capability load balancing information encoding that is updated in accordance with server capability information based at least in part on processing of sample requests by a plurality of servers during intervals (Kawata et al shows test service packets are sent to servers which are processed and returned providing information to the load balancer to load balance requests from clients which is repeated throughout (paragraphs 74-76, 82, and 83)).

(Claim 49 discloses) the apparatus of claim 48 further comprising a high resolution timer for measuring the server capability information (Kawata et al shows the use of a timer to measure response time (paragraph 74)).

(Claim 50 discloses) the apparatus of claim 48 further comprising means for collecting the server capability information at intervals between handling of client requests (Kawata et al shows the server information is updated between servicing requests (paragraph 56)).

(Claim 51 discloses) the apparatus of claim 48 further comprising means for measuring the server capability information (Kawata et al shows generating load values (paragraph 76)).

(Claim 52 discloses) the apparatus of claim 48 further comprising memory that includes the proportional server capability load balancing information encoding (Kawata et al shows the method is stored on computer readable medium (paragraph 104)).

(Claim 53 discloses) A computer program product encoded in one or more machine-readable media, the computer program product comprising: a first sequence of instructions to transmit sample requests to a plurality of servers at intervals and receive responses corresponding thereto (Kawata et al shows test service packets are sent to servers which are processed and returned providing information to the load balancer to load balance requests from clients which is repeated throughout (paragraphs 74-76, 82, and 83).); and a second sequence of instructions to determine proportional capability information for each of the plurality of servers based at least in part or the sample requests and corresponding responses (Kawata et al shows a load balancer generates capability information based on the measured load of the servers (paragraphs 75 and 76)).

(Claim 54 discloses) the computer program product of claim 53 further comprising a third sequence of instructions to encode the determined proportional capability of each of the plurality of servers, wherein the encoded proportional server capability indicates each of the plurality of servers in accordance with the determined

proportional server capability (Kawata et al shows a server is chosen based on the load status of the servers (paragraphs 66 and 67)).

(Claim 55 discloses) the computer program product of claim 54 further comprising the third sequence of instructions to maintain the proportional server capability encoding for load balancing (Kawata et al shows the server information is updated as conditions change (paragraph 56)).

(Claim 56 discloses) the computer program product of claim 54 further comprising a fourth sequence of instructions to load balance client requests in accordance with the proportional server capability encoding (Kawata et al shows requests are distributed to the servers accordingly (paragraphs 66 and 67)).

(Claim 58 discloses) the computer program product of claim 56 further comprising the third sequence of instructions to forward client requests to standby servers during the intervals (Kawata et al shows another server processes requests while samples are processed (paragraph 72)).

(Claim 59 discloses) the computer program product of claim 53 wherein the second sequence of instructions measures one or more of time for each of a plurality of servers to respond to each request, time for each of a plurality of servers to respond to each request based on request type, total number of responses provided by each of a plurality of servers during the periodic intervals, and number of responses provided by each of a plurality of servers based on request type (Kawata et al shows the system measures the time to service a request (paragraph 74)).

(Claim 60 discloses) a computer program product encoded in one or more machine-readable media, the computer program product comprising: a first sequence of instructions to update a proportional server capability load balancing information encoding that reflects proportional measured sample request based capabilities of a plurality of servers, wherein the capabilities are measured during intervals (Kawata et al shows test service packets are sent to servers which are processed and returned providing information to the load balancer to load balance requests from clients which is repeated throughout (paragraphs 74-76, 82, and 83).); and a second sequence of instruction to select server indications from the proportional server capability load balancing information encoding to load balance client requests (Kawata et al shows a load balancer generates capability information based on the measured load of the servers (paragraphs 75 and 76)).

(Claim 62 discloses) the computer program product of claim 60 further comprising a third sequence of instructions to forward client requests to standby servers while the first sequence of instructions updates the proportional server capability load balancing information encoding Kawata et al shows another server processes requests while samples are processed (paragraph 72)).

(Claim 63 discloses) the computer program product of claim 60 further comprising a third sequence of instructions to measure capabilities of the plurality of directory servers based at least in part on sample requests (Kawata et al shows test service packets are sent to servers which are processed and returned providing information to the load balancer (paragraphs 74-76, 82, and 83)).

(Claim 65 discloses) the computer program product of claim 60 wherein the measured sample request based proportional capabilities include one or more of number of sample directory requests serviced during a time interval, number of sample directory requests serviced during a time interval based on type of sample requests, time to service a number of sample directory requests during a time interval, and time to service a number of sample directory requests based on type of sample requests during a time interval (Kawata et al shows the system measures the time to service a request (paragraph 74)).

(Claim 66 discloses) the computer program product of claim 60 wherein the requests include directory requests (Kawata et al shows the service requests contain various content (paragraph 39)).

(Claim 67 discloses) a network comprising: a plurality of servers processing requests (Kawata et al shows a plurality of servers (figure 1, #107-109).); and a load balancer forwarding client requests in accordance with a proportional server capability information encoding that indicates each of the plurality of servers in accordance with their proportional capability, wherein the proportional server capability information encoding is based at least in part on servicing of sample requests during intervals between forwarding of client requests (Kawata et al shows test service packets are sent to servers which are processed and returned providing information to the load balancer to load balance requests from clients which is repeated throughout (paragraphs 74-76, 82, and 83), and a load balancer generates capability information based on the measured load of the servers (paragraphs 75 and 76)).

(Claim 68 discloses) the network of claim 67 further comprising the load balancer measuring the capabilities of the plurality of servers during the intervals (Kawata et al shows a server is chosen based on the load status of the servers (paragraphs 66 and 67)).

(Claim 69 discloses) the network of claim 68 wherein measuring includes the load balancer transmitting the sample requests and receiving responses corresponding to the sample requests (Kawata et al shows test service packets are sent to servers which are processed and returned providing information to the load balancer (paragraphs 74-76, 82, and 83)).

(Claim 70 discloses) the network of claim 67 further comprising one or more standby servers to handle client requests while the load balancer measures capabilities of the plurality of servers (Kawata et al shows another server processes requests while samples are processed (paragraph 72)).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 7, 22, 31, 32, and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawata et al (US PGPUB US2002/0032777) in view of Leighton et al (US PGPUB US2002/0129134).

Claim 7 discloses the load balancer of claim 1 wherein the collecting of server capability information comprises transmitting the sample requests to the plurality of servers during the intervals and recording information that corresponds to the servers servicing of the sample requests. Kawata et al teaches the limitations of claim 1 as recited above. It fails to teach collecting of server capability information comprises transmitting the sample requests to the plurality of servers during the intervals and recording information that corresponds to the servers servicing of the sample request. Leighton et al teaches sending test requests to all the servers connected (paragraph 36).

Kawata et al and Leighton et al are analogous art because they are both related to network load balancing.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the test request distribution feature in Leighton et al with the system in Kawata et al because efficient mapping for load balancing is provided (Leighton, paragraph 6).

Claim 22 discloses the method of claim 14 wherein collecting backend server capability data comprises: transmitting the sample requests to the backend servers; and recording data that corresponds to servicing of the sample requests by the backend servers. Kawata et al teaches the limitations of claim 14 as recited above. It fails to teach transmitting the sample requests to the backend servers and recording data that corresponds to servicing of the sample requests by the backend servers. Leighton et al teaches sending test requests to all the servers connected (paragraph 36).

Kawata et al and Leighton et al are analogous art because they are both related to network load balancing.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the test request distribution feature in Leighton et al with the system in Kawata et al because efficient mapping for load balancing is provided (Leighton, paragraph 6).

Claim 31 discloses the method of claim 29 wherein maintaining the proportional server capability information encoding comprises: transmitting the sample requests to the plurality of servers at intervals; and recording the server capability information that indicates frequency of the sample requests serviced by the servers. Kawata et al teaches the limitations of claim 29 as recited above. It fails to teach transmitting the sample requests to the plurality of servers at intervals and recording the server capability information that indicates frequency of the sample requests serviced by the servers. Leighton et al teaches sending test requests to all the servers connected (paragraph 36).

Kawata et al and Leighton et al are analogous art because they are both related to network load balancing.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the test request distribution feature in Leighton et al with the system in Kawata et al because efficient mapping for load balancing is provided (Leighton, paragraph 6).

Claim 32 discloses the method of claim 31 wherein the sample requests include a mixture of configurable sample requests. Kawata et al further teaches the service requests contain various content (paragraph 39).

Claim 64 discloses the computer program product of claim 63 wherein the third sequence of instructions to measure capabilities comprises the third sequence of instructions to transmit the sample requests to the plurality of directory servers and to receive responses corresponding thereto during the intervals. Kawata et al teaches the limitations of claim 63 as recited above. It fails to teach the third sequence of instructions to measure capabilities comprises the third sequence of instructions to transmit the sample requests to the plurality of directory servers and to receive responses corresponding thereto during the intervals. Leighton et al teaches sending test requests to all the servers connected (paragraph 36).

Kawata et al and Leighton et al are analogous art because they are both related to network load balancing.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the test request distribution feature in Leighton et al with the

system in Kawata et al because efficient mapping for load balancing is provided (Leighton, paragraph 6).

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawata et al (US PGPUB US2002/0032777) in view of Coughlin (US PGPUB US2004/0024861).

Claim 11 discloses the load balancer of claim 10 that updates the proportional server capability based load balancing encoding in response to a change in network configuration. Kawata et al teaches the limitations of claim 10 as recited above. It fails to teach updating the proportional server capability based load balancing encoding in response to a change in network configuration. Coughlin teaches the server list is updated due to server changes (paragraph 64).

Kawata et al and Coughlin are analogous art because they are both related to network load balancing.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the server list updating feature in Coughlin with the system in Kawata et al because the operational load on each server is able to be considered so overall performance is maximized (Coughlin, paragraph 1).

Claim 12 discloses the load balancer of claim 11 wherein the change of network configurations includes change of server availability. Coughlin further teaches the server list is updated when new servers are added (paragraph 64).

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawata et al (US PGPUB US2002/0032777) in view of Pruitt et al (US Patent #7,308,475).

Claim 24 discloses the method of claim 23 wherein the sample directory requests are in accordance with one or more protocol including lightweight data access protocol and universal description discovery and integration. Kawata et al teaches the limitations of claim 23 as recited above. It fails to teach the sample directory requests are in accordance with one or more protocol including lightweight data access protocol and universal description discovery and integration. Pruitt et al teaches the requests are transmitted according to universal description discovery and integration (column 7, lines 18-43).

Kawata et al and Pruitt et al are analogous art because they are both related to network resource sharing.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the request feature in Pruitt et al with the system in Kawata et al because a standard protocol for providing the location of a requested service is provided (Pruitt, column 1, lines 11-24).

Claims 46, 57, and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawata et al (US PGPUB US2002/0032777) in view of Shabtay et al (US PGPUB US2002/0120743).

Claim 46 discloses the method of claim 37 further comprising buffering client requests during the data collection interval. Kawata et al teaches the limitations of claim 37 as recited above. It fails to teach buffering client requests during the data collection interval. Shabtay et al teaches buffering request packets (paragraph 64).

Kawata et al and Shabtay et al are analogous art because they are both related to network load balancing.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the request buffer feature in Shabtay et al with the system in Kawata et al because additional information regarding the balancing decision is able to be obtained (Shabtay, paragraph 64).

Claim 57 discloses the computer program product of claim 56 further comprising a fifth sequence of instructions to buffer client requests during the intervals. Kawata et al teaches the limitations of claim 56 as recited above. It fails to teach a fifth sequence of instructions to buffer client requests during the intervals. Shabtay et al teaches buffering request packets (paragraph 64).

Kawata et al and Shabtay et al are analogous art because they are both related to network load balancing.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the request buffer feature in Shabtay et al with the system in Kawata et al because additional information regarding the balancing decision is able to be obtained (Shabtay, paragraph 64).

Claim 61 discloses the computer program product of claim 60 further comprising a third sequence of instructions to buffer client requests While the first sequence of instructions updates the proportional server capability load balancing information encoding. Kawata et al teaches the limitations of claim 60 as recited above. It fails to teach a third sequence of instructions to buffer client requests While the first sequence

of instructions updates the proportional server capability load balancing information encoding. Shabtay et al teaches buffering request packets (paragraph 64).

Kawata et al and Shabtay et al are analogous art because they are both related to network load balancing.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the request buffer feature in Shabtay et al with the system in Kawata et al because additional information regarding the balancing decision is able to be obtained (Shabtay, paragraph 64).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Deng et al (US PGPUB US2001/0039581) teaches of a system for the balance distribution across multiple servers using dynamic metrics.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Gillis whose telephone number is (571)272-7952. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharia can be reached on 571-272-3880. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Brian J Gillis
Examiner
Art Unit 2141

/B. J. G./
Examiner, Art Unit 2141
6/16/2008

/Jason D Cardone/
Supervisory Patent Examiner, Art Unit 2145